WHAT IS CLAIMED IS:

1. A method of making a composition for the treatment or prevention of a disease selected from the group consisting of non-insulin dependent diabetes mellitus, syndrome X, hyperlipidaemia, hypertension, hyperinsulinaemia, hypercholesterinaemia, hypertriglycerinaemia, impaired glucose tolerance and related obesity comprising combining phytanic acid or a phytanic acid derivative with a pharmaceutically acceptable carrier.

2. A composition for the treatment or prevention of non-insulin dependent diabetes mellitus comprising phytanic acid or a derivative thereof.

3. A composition according to claim 2 further comprising a pharmaceutically acceptable carrier.

4. A composition according to claim 3 wherein the pharmaceutically acceptable carrier is selected from the group consisting of diluent, filler, disintegrate, wetting agent, lubricant, colorant, flavorant, adjuvants, and combinations thereof.

5. A composition according to claim 4 wherein the carrier is selected from the group consisting of icrocrystalline cellulose, starch, sodium atarch glycollate, polyvinylpyrrolidone, polyvinylpolypyrrolidone, magnesium stearate, sodium lauryl sulfate, sucrose, and combinations thereof.

6. A composition according to claim 2 comprising from about 0.1 to about 1000 mg of phytanic acid or a derivative thereof.

7. A composition according to claim 6 comprising from about 0.1 to about 500 mg of phytanic acid or a derivative thereof.

8. A composition according to claim 7 comprising from about 0.1 to about 100 mg of phytanic acid or a derivative thereof.

9. A dietary supplement comprising a composition according to claim 2.

10. A method of treating or preventing non-insulin dependent diabetes mellitus comprising administering to a human or an animal an effective dose of a pharmaceutical composition or a dietary supplement comprising phytanic acid, a phytanic acid precursor, or a derivative of phytanic acid.

11. A method according to claim 10 wherein the phytanic acid derivative, or phytanic acid precursor is derived from phytanic acid.

12. A method according to claim 10 wherein the phytanic acid derivative or phytanic acid precursor is derived from phytenic acid.

13. A method according to claim 10 wherein the phytanic acid derivative or phytanic acid precursor is selected from the group consisting of phytol, hydroxy-phytanic acid, phytanic esters, phytanic amides, hydroxy-phytanic esters, hydroxy phytanic amides, hydroxy-phytenic acid, phytenic esters, phytenic amides, hydroxy-phytenic esters, hydroxy-phytenic amides, and combinations thereof.

14. A method for increasing cellular glucose uptake comprising administering to an animal or a human in need of increased cellular glucose uptake a phytanic acid derivative or a phytanic acid precursor in an effective amount to increase cellular glucose uptake.

15. A method according to claim 14 wherein the effective amount of the phytanic acid derivative or phytanic acid precursor induces a gene selected from the group consisting of GLUT-1, GLUT-2, GLUT-4, glucokinase, and combinations thereof to increase cellular glucose activity within the animal or human.

16. A method according to claim 14 wherein the effective amount of the phytanic acid derivative or phytanic acid precursor is from about 0.1 to about 50 mg/kg body weight/day.

17. A method according to claim 16 wherein the effective amount of the phytanic acid derivative or phytanic acid precursor is from about 0.5 to about 40 mg/kg body weight/day.

18. A method according to claim 17 wherein the effective amount of the phytanic acid derivative or phytanic acid precursor is from about 1.0 to about 20 mg/kg body weight/day.

19. A method of reducing plasma insulin comprising administering to a mammal a plasma insulin reducing amount of a composition comprising phytanic acid or a derivative thereof.